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7 January 1955

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MEMORANDUM FOR: THE RECORD

SUBJECT: Installation of Ultrasonic Burglar Alarm System

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1. On 3 January 1955, the undersigned visited [redacted] for the purpose of installing the modified [redacted] Ultrasonic Burglar Alarm in a work room to be utilized solely for classified TSS/FED projects.

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2. Since the guard system at [redacted] does not utilize more than one person per shift, it was necessary to provide some means whereby the secured area would be given full protection against break-ins. Accordingly, the [redacted] units were installed completely within the area they guarded and a single pair of unprotected leads run outside the area and terminate at a push button switch.

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3. The system proved quite secure after the one unforeseen bug was dispensed with, to wit: the basic system is one in which the alarm buzzer is normally remote from the protected area. In this modified set-up an electric automobile horn was installed within the guarded area and wired up so as to be activated when the re-set button external to the guarded room was pressed. Apparently, the acoustic energy fed into the room by the horn was of a sufficiently high level to cause a ringing in the room after the horn was turned off, this ringing having a sufficient number of high energy components in the ultrasonic region to cause the alarm system to re-trigger itself. Thus, it became impossible to re-set the alarm once it had been triggered. This, of course, was largely overcome by adjusting the sensitivity of the alarm receiver downward and concomitantly reducing the sound power output of the auto horn.

4. It is felt that the [redacted] unit as finally set up will provide a reasonable amount of protection. In order to overcome certain deficiencies, however, the following suggestion is made: At present, an extremely loud horn is heard at least twice daily - once in the evening when the unit is armed, and, again, each morning when the guarded room is entered by the work force. Therefore, in order to minimize the needed on-time of the horn, a short delay holding relay should be incorporated into the system which would allow perhaps ½ second between the arming of the alarm system and the cessation of horn blast when the re-set button is released. This would eliminate the occasional self-triggering action still inherent in the system (even though the output of the horn was reduced it has to be left sufficiently high in order to be heard by the building guard).

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5. Conclusions: The present system provides a modicum of security, it displays the following limitations:

a. The alarm horn cannot be sufficiently loud to be heard throughout the building, although within the guarded room it is unbearably loud and would probably put any would-be burglar right outside the room as soon as it was triggered.

b. The night guard at [redacted] does not have a key to the secure area (he is as yet un-approved) and should the horn go on during the night due to system breakdown, there is no means for re-setting without entering the room. 50X1

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[redacted]

TSS/APD/EEB

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